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NAS CECIL FIELD
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LETTER AND COMMENTS FROM U S EPA REGION IV REGARDING DRAFT REMEDIAL INVESTIGATION/FEASIBILITY STUDY WORK PLAN ADDENDUM I OPERABLE UNIT 1, 2 AND 7 (OU1) (OU2) (OU7)
5/8/1992
U S EPA REGION IV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

MAY 08 1992
4WD-RCRA/FF

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Cliff Casey
Remedial Activities Branch
Department of the Navy - Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P.O. Box 10068
Charleston, South Carolina 29411-0068

Re: Draft RI/FS Work Plan Addendum 1 for Operable Units 1, 2 and 7;
NAS, Cecil Field

Dear Mr. Casey:

The Environmental Protection Agency (EPA) has completed its review of the RI/FS Work Plan Addendum 1 for Operable Units 1, 2 and 7, received in this office on April 16, 1992. Enclosed are our comments.

In accordance with the Expedited Schedules provided at the Remedial Project Manager's meeting held March 17, 1992 in Atlanta, Round 2 field work for these Operable Units is scheduled to begin May 13, 1992. However, due to significant deficiencies in the present document, EPA recommends that the Expedited Schedule be modified as follows in order to ensure that the Round 2 field work will be of adequate quality and completeness to perform the Baseline Risk Assessment and select an appropriate Remedial Alternative for the subject sites:

Task Name:	Duration:
Navy Preparation of Draft Final Addendum & Response to Comments	30 days from receipt
EPA Review	30 days from receipt
Finalization of Addendum	7 days

Furthermore, given the quality of the document submitted, EPA is concerned that the amount of contractor resources currently allocated to this project may be insufficient to assure continued successful adherence to the present schedules. The above necessary schedule modifications will make it extremely difficult for the Navy to maintain the document submittal dates agreed to at the March 17, 1992 RPM Meeting. EPA reminds the Navy that some of these dates already reflect an extension over the enforceable transmittal date for the Draft RI/FS Report of July 14, 1992 (as per the approved FY92 Site Management Plan). EPA recommends that the Navy re-evaluate its current allocation of contractor resources and consider what adjustments can and must be made. EPA is committed to providing the Navy with the maximum assistance

and support possible in order to assure the continued success of an aggressive clean-up program. We trust that the Navy is committed to these same goals, and that a mutually acceptable solution to the problems at hand can be achieved.

Should the Navy wish to discuss any of our review comments or the above-mentioned resource issue in greater depth, this can be done either at the upcoming RPM meeting scheduled for May 21, 1992, or earlier, if so desired. Please contact me at 404/347-3016 if you have any further questions or comments regarding these matters.

Sincerely yours,

Allison W. Drew

Allison W. Drew, RPM
Department of Defense Remedial Unit
RCRA & Federal Facilities Branch

Enclosure

cc: John Dingwall, NAS Cecil Field
Eric Nuzie, FDER

TECHNICAL REVIEW AND COMMENTS
REMEDIAL INVESTIGATION/FEASIBILITY STUDY WORK PLAN: ADDENDUM 1
OPERABLE UNITS 1, 2 AND 7
NAVAL AIR STATION (NAS), CECIL FIELD
JACKSONVILLE, FLORIDA

GENERAL COMMENTS:

1. All pages of this document, including figures and tables, must be numbered.

2. The intended goals of this additional field work must be more thoroughly defined. Is the intended purpose of the investigation to collect adequate information to complete the Baseline Risk Assessment and select an appropriate Remedial Action? As was discussed at the Remedial Project Manager's meeting, the three Operable Units are currently at different stages in the RI/FS process and have different data needs. In order to assure that these site-specific goals will be met, the current status of each Operable Unit must be stated along with the intended purpose of any proposed additional work.

3. All currently available hydrogeologic information must be presented on an Operable Unit- or site-specific basis. Specifically, all previously existing information, as well as the results of the Round 1 field investigations, must be used to provide the following information, at a minimum, for each site:

(i) clarification as to the saturated thickness of the surficial aquifer; the depth to the water table; the depth, thickness and composition of the confining layer; the depth and thickness of the secondary aquifer; the vertical flow direction between the aquifers; and the vertical and horizontal gradients between and within each aquifer. Cross sections based on information gathered during Round 1 may provide a useful means for depicting this information

(ii) a compilation of all known aquifer properties (e.g. hydraulic conductivities, transmissivities) either in tabular form or plotted on some figure

(iii) potentiometric surface maps for each hydrogeologic unit as well as water level data in tabular form

This information is needed for use in evaluating current site conditions and interpreting the results of chemical analyses obtained thus far.

4. In general, during all future investigations, split spoon samples must be collected from the deepest well installed at each "cluster" location (this includes the "shallow" well, if it is the only well installed at a given location). All split spoon samples must be screened in the field using an OVA or similar FID device. At a minimum, 20% of the samples so collected must be submitted to a CLP lab for TCL/TAL analysis. This approach will provide much useful additional information while keeping the associated costs (both time and monetary) to a minimum by making optimal use of already-committed resources.

5. In order for EPA to effectively evaluate the data collected, a table summarizing the sampling data obtained during Round 1 must be provided for each site. This table must include the following information for each sample collected: sample #, media, aquifer/depth to be sampled (ground water samples), depth interval (soil samples), analyses to be performed, DQO Level, identification of background samples. This information summary will facilitate evaluation of the adequacy of Round 1 field investigations and the identification of remaining data gaps.

6. All figures which identify Round 1 sampling locations, such as Figure 1, should also identify which wells were pre-existing and which were installed during the Round 1 investigations.

7. For the purposes of clarifying which, and how many, samples will be collected during Round 2, the following information must be consolidated into a single table for each site: sample #, media, aquifer/depth to be sampled (ground water samples), depth interval (soil samples), analyses to be performed, DQO Level.

8. With regards to the proposed Round 2 sampling locations and parameters, in all cases the following information must also be provided:

(i) Maps illustrating the proposed sampling locations,
(ii) Text or table stating the rationale for selection of the proposed sampling points (i.e. data gap to be filled). The text may also include, if appropriate, strategies to be used in modify sampling points in the field

9. Given the classifications of the Surficial Aquifer as IIB: potential drinking water source and the Secondary Artesian Aquifer as IIA: actual drinking water source, the detection limits for all groundwater samples must be set at levels that can be compared to the Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs) or Proposed MCLs. The detection limits for the following compounds exceed the MCLs or Proposed MCLs: antimony, vinyl chloride, pentachlorophenol, benzo(b)fluoranthene, benzo(k)fluoranthene, and benzo(a)pyrene. Groundwater must be sampled and analyzed by procedures that allow meaningful comparison to the appropriate ground-water protection standards.

Also, the CLP detection limits for some contaminants for water and sediment are above the levels of potential ecological concern (Attachment A). The requirement of using methods of analysis which would result in detection limits within the range of levels of ecological significance must be considered in order to properly determine the extent of contamination and ecological impact.

10. The document lacks an adequate discussion of background sampling and comparison of onsite data to background data. This information must be provided.

11. The clarity of all text in the data tables must be improved. Preferably, the letter size should be enlarged and the shading omitted.

12. The existing and potential risk to the environment from exposure to contaminants under the "no action" alternative must be addressed for each site. At a minimum, the environmental evaluation shall include the following:

(i) a statement of goals and scope of the environmental assessment
(ii) identification of the contaminants of ecological concern
(iii) identification of all potential and existing exposure pathways
(iv) identification of potential receptors including:
a. species lists, including scientific and common names, of flora and fauna which may be affected by the site contaminants, whether they are located on or off the site, including the identification of any endangered or threatened species
b. critical habitats which may be affected by the site contaminants, whether they are located on or off the site
(v) estimation of the ecological effects of the contaminants, using literature reviews, computer databases, field studies, site-specific toxicity tests when appropriate, etc.
(vi) an estimation, qualitative or quantitative, of the nature and extent of ecological risk or threat and environmental impact resulting from the site.

13. Evidence must be provided which indicates that the United States Fish and Wildlife Service, other appropriate Federal trustees, and the appropriate state agency have been contacted for information concerning threatened and endangered species, and critical or sensitive habitats.

14. Ultimately, an Ecological Baseline Risk Assessment (BRA) which addresses the environmental impact of the entire facility must be prepared. The individual hazardous waste sites identified at NAS Cecil Field have the potential to ecologically impact: (i) the immediate terrestrial environment; (ii) the adjacent aquatic water system through storm water runoff, and possibly through groundwater discharge; and (iii) areas downgradient and downstream of the individual waste site. For this reason, piecemealing the ecological risk assessment by individual sites, or groups of sites, may result in inadequate characterization of the potential cumulative impacts. EPA recommends that the following approach be utilized in preparing the Ecological BRA:

(i) Conduct a <u>section</u> of the Ecological BRA, in accordance with the procedures described in Section 6.2 of the present RI/FS Work Plan, for each Operable Unit. Ecological concerns (e.g. factors such as potential to impact the same terrestrial/aquatic habitats and/or drainage basin) must be considered when making the final Operable Unit designations.

(ii) As each section of the BRA is completed, the data must be assimilated into an Interim Ecological BRA. Material for each Operable Unit shall be continually added to this interim document as it becomes available. The end result, following identification and adequate description of all sources and their effects, will be the final

Ecological BRA. This approach will assure adequate description and evaluation of the ecological risks posed by the entire facility at the conclusion of all investigations.

15. A figure of the facility showing the location of each Operable Unit should be included to give the viewer perspective as to the proximity of each site to other surrounding sites. This will help provide insight as to whether contaminants at one site may be impacting an adjacent site.

16. The well construction details of all existing wells must be provided in tabular form. The following data must be included: depth of well, screen length, screen size, casing material, casing diameter, land surface elevation, and completion date. The text does not mention if all the monitoring wells have been surveyed for horizontal and vertical position. This data must be provided in the table as well, if available.

17. Handling and disposal of contaminated ground-water collected during any aquifer tests must be discussed in the text.

SPECIFIC COMMENTS:

1. Page 1, Paragraph 4:
The wells used to perform slug tests must be identified and their locations provided. The data which was collected during the test and the graphs of change in hydraulic head versus change in time must also be provided.

2. Page 2, Paragraph 5:
a. According to Attachment A: Soil Boring Logs, a total of 13 wells were installed and split spoon sampling was performed during installation of only 2 of these (1-7DD and 2-7D). Please make the necessary corrections.

b. The text and Attachment A both indicate that three well pairs were installed. However, none of the figures provided shows the location of the well pair installed at Site 1 (i.e. 1-8 & 1-8D).

c. Were field screening (e.g. headspace) or laboratory analyses performed on any of the split spoon samples?

3. Page 4, Paragraph 2:
a. How was background defined for these sites? Were any of the locations from which samples were collected identified as background, or reference, locations?

b. According to Table 2, concentrations of phenol exceeding the CRDL were also detected in groundwater sample CEF-1-8D.

c. Further discussion and evaluation of all groundwater analytical results is needed. In particular, the results of metals analyses relative to pertinent regulatory standards must be presented and discussed further. The location and depth at which contamination above CRDLs and regulatory standards must also be evaluated.

4. Page 4, Paragraph 3:
The text must summarize and evaluate the significance of the analytical results obtained for these surface water and sediment samples.

5. Page 4, Section 3.1.3:
a. The rationale behind selection of the wells to be resampled must be provided. Specifically, what criteria from the Round 1 ground water analytical results were used to select only a portion of the existing wells and what information is expected to be gained by resampling? Also, the rationale for installing 4 additional deep wells must be provided.

b. Regarding the Feasibility Study tasks listed, bullet items 1 and 6 are directed at characterizing the extent of contamination and must therefore be accomplished during the Remedial Investigation. Bullet item 4 apparently refers to the evaluation process which comprises the Risk Assessment. Bullet items 2, 3 and 5 are directed at determining specific properties of the contaminated media and may therefore legitimately be deferred to the Feasibility Study. Consequently, the need to perform the latter tasks is

dependent upon the results of items 1, 6 and 4. In general, the feasibility study should include the development of remediation goals based on the results of the Baseline Risk Assessment.

6. Pages 12 and 13, Tables 3 and 4:
Where are stations SW/SD-9 and SW/SD-10 located? Their locations must be indicated in Figure 1..

7. Page 14, Figure 2:
a. This figure does not provide locations for any proposed shallow monitoring wells. Why does the legend indicate that such wells have been proposed?

b. An additional well should be installed and sampled east of Rowell Creek to determine if the creek is acting as a hydrogeologic divide and preventing contaminants from migrating in this direction.

c. Ground-water from monitoring well CEF1-1S should be collected and analyzed for TCL/TAL parameters.

8. Page 15, Paragraph 1:
a. The ordering of the text suggests that the tasks proposed on this page comprise portions of the Feasibility Study, implying that they will not be performed unless "the risk assessment indicates that remedial actions are necessary." The data to be obtained in the sampling events proposed in paragraphs 3 through 6 of page 5 is needed to prepare the proposed Risk Assessment and must be completed during Round 2. The justification for performing four pumping tests at this point is less clear and should be determined following evaluation of the proposed sampling results. Instead of proposing specific locations and numbers of pumping test wells at this point, the text should specify the criteria which will be used to determine whether pumping tests will be needed in Round 2 and, if so, the criteria for determining the appropriate number and locations of tests.

b. With regards to the information to be gained from these pumping tests, if performed, the text states that each test will be conducted in the surficial aquifer. At each test location, multiple observation wells penetrating the various zones will be monitored. The likelihood of observing any contribution from the confining layer or the secondary artesian aquifer while conducting the test in the surficial aquifer are very slim, especially if the test is conducted for only six hours. A better approach to determining the hydraulic properties of the aquifers and the extent of ground-water communication between them would be to perform two aquifer tests. One test should be conducted in the surficial aquifer and one in the secondary artesian aquifer. The aquifer test conducted in the surficial aquifer should be no less than 48 hours in duration. Steady state flow in an unconfined aquifer will not occur six hours after the initial starting time if the zone tested is pumped at the optimum pumping rate. Pumping the aquifer 48 hours will provide data that represents instantaneous release of ground-water from the zone tested and the effects of gravity drainage within the aquifer. Conducting a second test in the secondary artesian aquifer can provide valuable hydrogeologic information such as leakage rates between the aquifers and boundary effects within the aquifers.

9. Page 15, Paragraphs 3 through 6:
a. The rationale for collection of each the proposed ground water, surface water and surface soil samples must be provided. Specifically, what criteria from the Round 1 ground water analytical results were used to select the proposed locations and media to be sampled?

b. The soil samples may also be used to project the contaminant impacts, both current and future, on burrowing animals.

c. Only 5 wells screened in the secondary artesian aquifer are illustrated in Figure 2, while the text states that 6 such wells will be sampled.

10. Page 16, Figure 3:
It is proposed that the closest observation well will be installed 15 to 20 feet from the pumping well and that each additional observation well will also be spaced at this same distance. According to this figure, 3 observation wells will be installed in the surficial aquifer and 1 in the secondary artesian aquifer at each aquifer test location. The observation wells are positioned extremely close to the pumping wells as shown. An observation well should be no closer to the pumping well than 1.5 times the thickness of the aquifer, i.e. the closest well should be located 45 feet from a pumping well penetrating an aquifer 30 feet in thickness. This distance will ensure that laminar flow will occur in the observation well during the test.

11. Pages 20 and 21, Figures 5 and 6:
These figures contain more contour lines than the data would indicate appropriate. The value corresponding to each soil gas point, as well as the units of measurement, must also be provided in these figures.

12. Page 21, Section 3.3.1.2:
a. In order to permit adequate evaluation of the data collected, the analytical results obtained for groundwater and soil samples must each be plotted on separate figures. For comparison purposes, the figure illustrating soil contamination should also depict the area "originally identified as the pit area."

b. "Laboratory analyses of soil and groundwater samples detected [contaminants] ...in several different areas of the site." This statement must be expanded upon. Specifically, what areas (location, size) were identified? Were similar types and concentrations of contaminants detected in each of these areas?

13. Page 21, Section 3.3.1.3:
a. Greater assurance must be provided that the proposed samples will "...delineate the contamination in soil and groundwater", both laterally and vertically. Specifically, the proposed locations for all samples must be provided on figures. The rationale for placement of each sample must be provided in either text or tabular form. The text must also describe the strategies which will be used to revise the numbers and locations of samples in the field as necessary.

b. Four types of sampling and analysis are proposed for Round 2:

1. field screening (OVA/GC) of 20 soil samples
2. TCL/TAL analysis of 5 surface soil samples
3. field screening (method unspecified) of 75 groundwater samples
4. TCL/TAL analysis of 3(+) groundwater samples

Only the data obtained by methods 2. and 4. will be suitable for risk assessment purposes. The number and locations of DQO Level IV samples collected must be adequate to "delineate...contamination" for purposes of performing the Baseline Risk Assessment.

c. Details of the proposed aquifer test at this site must be provided. Information such as the location of the pumping and observation wells, duration of the test, pumping rate, and analytical methods that will be used for data evaluation must be discussed.

14. Page 21, Section 3.3.2.1:
Is the "open area near the front" referred to here the same as the "open pit" shown in Figure 8? If not, please indicate the boundaries of this open area in the figure.

15. Page 22, Figure 7:
a. The following information must be provided in this figure:

(i) The approximate boundaries of the liquid waste pits
(ii) The approximate direction of ground-water flow in the surficial aquifer
(iii) The location of monitoring wells CEF3-8S and CEF3-9S

b. The monitoring well and boring numbers on this figure are nearly illegible. Please increase the size and improve the line quality of all sampling point identification numbers.

16. Pages 27 through 29, Table 6:
This table is incorrectly labeled "Groundwater Analytical Summary" as it contains soil analytical results.

17. Page 35, Section 3.3.2.3:
a. How many samples will be collected during the soil gas study and from what locations?

b. The goal of this investigation must be to determine, as efficiently as possible, whether Site 4 warrants No Further Action (NFA) or an RI/FS. Towards this end, screening level data (DQO Level I and II) are acceptable to show that contamination exists and that an RI/FS study is warranted. However, due to the probability of false negative data, this level of data is not acceptable to show that no contamination exists, and therefore further site characterization will be required before the site can be eliminated. DQO Level III and IV data must be used to substantiate no further action decisions. The number and locations of such samples collected must be

adequate to verify the absence of contamination for all potential pathways (media). Background samples must also be collected.

The present addendum must propose collection of some samples for Level IV analysis for this site. It must also include a rationale for the placement of these samples and a description of how the results of the soil gas study will be used to modify these locations if necessary.

18. Page 35, Section 3.3.3.2:
"The soil is contaminated with a variety of contaminants. ...The contamination has not been completely delineated." In order to effectively evaluate the proposed additional field work, the soil boring data which supports these statements must be summarized in tables and depicted in figures. The significance of these results must also be evaluated in the text in greater detail.

19. Page 35, Section 3.3.3.3:
a. Do the "waste disposal site boundaries" identified on Figure 9 depict the extent of the "stained area"? If not, please include the latter information in this figure.

b. The proposed locations for the 40 direct push probe samples must be provided in some figure. The text should also provide a rationale for each proposed location and present strategies which may be used to modify these locations in the field.

c. Will the proposed wells be installed in clusters in order to assess the vertical potential for contaminant migration?

d. At what depths will the proposed hydropunch soil samples be collected? At each location, sample collection must proceed until field screening results indicate that the vertical extent of contamination has been delineated. These field results must then be confirmed by laboratory analysis. Field screening results should also be used to select the more highly contaminated soil samples for TCL/TAL analysis.

20. Page 36, Figure 9:
a. Because monitoring well CEF5-7S contained lead and chromium at levels above MCLs, a new background well must be installed at this site.

b. An additional monitoring well should be installed south of the stream depicted in this figure to determine the extent of the contaminant plume.

21. Page 37, Paragraph 1:
Please provide the locations and rationale for the proposed surface soil samples.

22. Page 37, Section 3.3.4.2:
a. Regarding the soil sampling results, Figure 10 indicates that 6 soil borings were installed, but Table 6 provides analytical results for only 3 of these. None of the boring logs for Site 17 are provided in Attachment A. However, boring logs for all remaining sites indicate that shallow borings

were generally installed to a depth of 4', while the analytical results in Table 6 indicate that the borings at Site 17 were only installed to 2'. Does Table 6 include all of the soil analytical results? Why were all borings not sampled and installed to a depth of 4' or to the top of the water table?

b. In order to determine whether groundwater contamination exists, at least one monitoring well must be installed within the contaminant source area.

23. Page 37, Section 3.3.4.3:
Please provide the proposed locations for all hydropunch samples. The text must also provide a rationale for each of the proposed locations. At each location, sample collection must proceed until field screening results indicate that the vertical extent of contamination has been delineated. These field results must then be confirmed by laboratory analysis. Field screening results should also be used to select the more highly contaminated soil samples for TCL/TAL analysis.

24. Page 40, Table 7:
Is Monitoring Well CEF-16-6 truly an appropriate background well for this site?

25. Page 41, Paragraph 3:
Given that the intended goal of locating the seepage pit was not accomplished through installation of borings BOR-16-1 and BOR-16-2, additional records review and field work (if necessary) must be performed in order to accomplish this task.

26. Page 41, Section 3.4.3:
a. If additional work must be performed to delineate groundwater contamination, then it would seem more time and cost-effective to delineate soil contamination during the same round of field investigation rather than deferring it to site remediation.

b. Please provide locations and rationale for the 25 groundwater samples proposed for collection by direct push probe methods.

c. Based on the groundwater analytical results for 16-8DD, the vertical extent of groundwater contamination has not been determined. Since none of the proposed wells is deeper than CEF16-8DD, the results of Round 2 sampling, as currently proposed, will not determine the full vertical extent of groundwater contamination by this Dense Non-Aqueous Phase Liquid (DNAPL) and must be modified accordingly.

27. Page 44, Paragraph 1:
The aquifer test design for Site 16 must be discussed in detail, as was mentioned for the preceeding Operable Units. Please provide a location for the proposed pumping well in Figure 12.

28. Attachment B:
The complete analytical results are not included in this attachment. Please provide the TAL metals results and any other data which may have been mistakenly omitted.

Organic Contaminants in Water

Organic Compound	Detection Limit (ug/L)	Level of Possible Ecological Significance (ug/L)
Hexachloroethane	10	9.8
Hexachlorobutadiene	10	0.93
4-Chloro-3-methylphenol (para-chloro-meta-cersol)	10	0.3
Hexachlorocyclopentadiene	10	0.07
2,4,6-Trichlorophenol	10	3.2
2,4-Dinitrophenol	50	6.2
Pentachlorophenol	50	2.1
Di-n-butylphthalate	10	9.4
bis(2-Ethylhexyl)phthalate	10	< 0.3
Heptachlor	0.05	0.0038
Heptachlor epoxide	0.05	0.0038
Dieldrin	0.10	0.0019
Endrin	0.10	0.0023
Endosulfan II	0.10	0.056
4,4'-DDD	0.10	0.0064
4,4'-DDT	0.10	0.001
Chlordane	0.5	0.0043
Toxaphene	1.0	0.0002
Aroclor-1016	0.5	0.014
Aroclor-1221	0.5	0.014
Aroclor-1232	0.5	0.014
Aroclor-1242	0.5	0.014
Aroclor-1248	0.5	0.014
Aroclor-1254	1.0	0.014
Aroclor-1260	1.0	0.014

Metal Contaminants in Water

Metal	Detection Limit (ug/L)	Level of Possible Ecological Significance (ug/L)
Lead	3, 100 [1]	1.32
Thallium	10	4
Aluminum	200	87
Beryllium	5	0.53
Cadmium	5	0.66
Silver	10	0.012
Mercury	0.2	0.012
Cyanide	10	5.2

[1] Two values given. What will determine which detection limit will be used?

Organic Contaminants in Sediment

Organic Compound	Detection Limit (ug/kg)	Level of Possible Ecological Significance (ug/kg)
2-Methylnaphthalene	330	65
Acenaphthene	1,600	150
Fluorene	330	35
Phenanthrene	330	225
Anthracene	330	85
Benzo(a)anthracene	330	230
Dieldrin	16.0	0.02
4,4'-DDE	16.0	2
4,4'-DDD	16.0	2
4,4'-DDT	16.0	1
Endrin	16.0	0.02
Chlordane	80.0	0.5
Total PCBs	80 to 160	50

Metal Contaminants in Sediments

Metal	Detection Limit (mg/kg)	Level of Possible Ecological Significance (mg/kg)
Antimony	12	2
Silver	2.0	1